

REMARKS

I. The 35 U.S.C. §102 Rejections

Claims 1-6, 9-10, and 13-21 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,950,157, issued to Heck (“HECK”). Applicant respectfully traverses the rejections.

A. Overview

HECK discloses a method for identifying a handset type. HECK, col. 2, line 47 – col. 3, line 3; and col. 10, lines 8-48. Specifically, HECK discloses forming a plurality of acoustic handset models for a respective plurality of handset types. HECK, col. 10, lines 27-33. Each model is formed based on training data received from an associated handset type. Id. Subsequently, when speech data are received, HECK discloses presenting the received speech data to each of the plurality of acoustic handset models, which each computes a score based on the speech data. HECK, col. 10, lines 14-18. The scores computed by the plurality of acoustic handset models are then compared to each other to determine the highest score. HECK, col. 10, lines 22-23. The handset type associated with the acoustic handset model which computed the highest score is deemed the handset type being used to provide the speech data. HECK, col. 10, lines 23-26.

B. Claim 1

It is axiomatic that the cited reference in a §102 rejection must disclose every element in the rejected claim. Claim 1 recites:

A method for training a computer-implemented classification system to be able to identify a handset used over a communication network, comprising:

- (a) transforming training data for a plurality of handset types into a composite dataset including training feature vectors;
- (b) configuring a plurality of classifiers based on said composite dataset, including:

- (1) associating one of said classifiers with one of said handset types not previously associated with any other of said classifiers;
- (2) training said classifier of (1) to recognize, within said composite dataset, (A) a first class of training feature vectors related to said associated handset type, and (B) a second class of training feature vectors related to other handset types;
- (3) repeating (1) and (2) for at least another of said classifiers; and
- (c) storing a result of (b) in a computer-readable memory so as to be usable to (i) correlate an unidentified handset's test feature vectors against said trained classifiers, (ii) select one of said classifiers exhibiting the greatest correlation, and (iii) determine said handset type associated with said selected classifier.

Based on the arguments presented below, Applicant respectfully submits that HECK does not disclose or suggest multiple elements of claim 1.

1. HECK Does Not Disclose or Suggest Transforming Training Data for a Plurality of Handset Types into a Composite Dataset Including Training Feature Vectors

Element (a) of claim 1 recites transforming training data for a plurality of handset types into a composite dataset including training feature vectors. Examiner cited speaker model trainer 415 and normalizing model trainer 427 of Figure 2 in HECK as allegedly disclosing this step.

In HECK, “Figure 2 is a block diagram illustrating a system ... for speaker recognition.” HECK, col. 7, lines 43-47. In contrast, claim 1 recites a method for training a system to identify a handset.

The speaker model trainer 415 in HECK accepts speech data from a reference speaker speaking into a handset. HECK, col. 7, lines 48-50. “The speaker model trainer 415 forms a speaker model using the speech data as training data.” HECK, col. 7, lines 54-55. The speaker model trainer 415 as disclosed in HECK does not “transform” any training data into a composite dataset including training feature vectors as recited in claim 1.

The normalizing model trainer 427 in HECK accepts speech data from multiple normalizing speakers (who are not the target speaker) speaking into one or more handsets. HECK, col. 7, lines 63 – col. 8, line 1. “The normalizing model trainer 427 forms a normalizing model using the speech data as training data.” HECK, col. 8, lines 2-4. The normalizing model trainer 427 as disclosed in HECK also does not “transform” any training data into a composite dataset including training feature vectors as recited in claim 1.

Therefore, the cited portion of HECK does not disclose or suggest element (a) of claim 1.

In Figure 3, HECK discloses a handset type detector. Specifically, HECK discloses forming a plurality of acoustic handset models for a respective plurality of handset types. HECK, col. 10, lines 27-33. Each model is formed based on training data received from an associated handset type. Id. This portion of HECK also does not disclose or suggest the step of transforming training data into a composite dataset including training feature vectors as recited in claim 1.

2. HECK Does Not Disclose or Suggest Configuring a Plurality of Classifiers Based on Said Composite Dataset

Element (b) of claim 1 recites configuring a plurality of classifiers based on said composite dataset. Specifically, element (b) (2) of claim 1 recites training a classifier to recognize, within the composite dataset, a first class of training feature vectors related to the associated handset type, and a second class of training feature vectors related to other handset types.

HECK does not disclose or suggest any method for transforming training data for a plurality of handset types into a composite dataset including training feature vectors. Therefore, logically, HECK cannot disclose configuring a plurality of classifiers based on said composite dataset as recited in claim 1. Examiner cited the speaker input device type input stage 437 and the normalizing input device type input stage 439 of Figure 2 in HECK as allegedly disclosing this step.

The speaker input device type input stage 437 and the normalizing input device type input stage 439 of Figure 2 in HECK do not disclose or suggest configuration of classifiers.

The normalizing model determiner 430 includes a speaker handset type input stage 437 and a normalizing handset type input stage 439 that receive speaker handset type indication 432 and normalizing handset type indication 434, respectively. Indications 432 and 434 are indicative of handset types modeled by the speaker model 303 and the normalizing model 429, respectively. Based on the indication 432, the input stage 437 ascertains at least one speaker handset type 433 that is modeled by the speaker model 303. Based on the indication 434, the input stage 439 ascertains at least one normalizing handset type 435 that is modeled by the normalizing model 429. HECK, col. 8, lines 13-24 (emphasis added).

In contrast, claim 1 recites configuring classifiers to recognize a first and a second class of training feature vectors.

Applicant has reviewed HECK in detail but could not find any disclosure or suggestion for configuring classifiers to recognize training feature vectors. If the Examiner believes otherwise, Applicant requests the Examiner to cite the specific portion of HECK in the next action.

3. Conclusion

Based on the foregoing, HECK fails to disclose or suggest multiple elements recited by claim 1. Therefore, claim 1 should be in condition for allowance.

C. Claims 2-3

Claims 2-3 are dependent upon independent claim 1. Based on the foregoing arguments with respect to independent claim 1, these dependent claims should also be in condition for allowance.

D. Claim 4

Corresponding elements of independent claim 4 recite similar limitations (i.e., a plurality of classifiers, each of which has been trained to recognize a handset type by differentiating between a plurality of feature vectors ... , said feature vectors having been derived by transforming audio training data obtained therefrom into a multi-dimensional domain) as discussed above with respect to claim 1. Based on the foregoing arguments for claim 1, Applicant respectfully submits that HECK does not anticipate claim 4 and this claim is also in condition for allowance.

E. Claims 5-8

Claims 5-8 are dependent upon independent claim 4. Based on the foregoing arguments with respect to independent claim 4, these dependent claims should also be in condition for allowance.

F. Claim 9

Corresponding elements of independent claim 9 recite similar limitations (i.e., a composite database, including training feature vectors obtained by transforming training data ...; a plurality of classifiers ...each classifier configured to recognize, within said composite database, a first class of training feature vectors ... and a second class of training feature vectors...) as discussed above with respect to claim 1. Based on the foregoing arguments for claim 1, Applicant respectfully submits that HECK does not anticipate claim 9 and this claim is also in condition for allowance.

G. Claim 10

Claim 10 recites a method for identifying a handset, comprising at least the step of training each of a plurality of support vector machines to identify, respectively at least one of a plurality of handset types.

Applicant has reviewed HECK in detail but could not find any disclosure or suggestion for training support vector machines. If the Examiner believes otherwise,

Applicant requests the Examiner to cite the specific portion of HECK in the next action.

H. Claims 11-12

Claims 11-12 are dependent upon independent claim 10. Based on the foregoing arguments with respect to independent claim 10, these dependent claims should also be in condition for allowance.

I. Claim 13

Corresponding elements of independent claim 13 recite similar limitations (i.e., a plurality of support vector machines trained to identify at least one of a plurality of handset types) as discussed above with respect to claim 10. Based on the foregoing arguments for claim 10, Applicant respectfully submits that HECK does not anticipate claim 13 and this claim is also in condition for allowance.

J. Claim 14

Corresponding elements of independent claim 14 recite similar limitations (i.e., transform training data into a composite dataset including training feature vectors in a multi-dimensional domain; configure a plurality of classifiers based on the composite dataset) as discussed above with respect to claim 1. Based on the foregoing arguments for claim 1, Applicant respectfully submits that HECK does not anticipate claim 14 and this claim is also in condition for allowance.

k. Claim 15

Corresponding elements of independent claim 15 recite similar limitations (i.e., access a plurality of classifiers, each of which has been trained to recognize a handset type by differentiating between feature vectors, said feature vectors ... having been derived by transforming audio training data obtained therefrom into a multi-dimensional domain) as discussed above with respect to claim 1. Based on the

foregoing arguments for claim 1, Applicant respectfully submits that HECK does not anticipate claim 15 and this claim is also in condition for allowance.

l. Claim 16

Corresponding elements of independent claim 16 recite similar limitations (i.e., training each of a plurality of support vector machines) as discussed above with respect to claim 10. Based on the foregoing arguments for claim 10, Applicant respectfully submits that HECK does not anticipate claim 16 and this claim is also in condition for allowance.

m. Claim 17

Corresponding elements of independent claim 17 recite similar limitations (i.e., transforming training data into a composite dataset including training feature vectors in a multi-dimensional domain; configuring a plurality of classifiers based on the composite dataset) as discussed above with respect to claim 1. Based on the foregoing arguments for claim 1, Applicant respectfully submits that HECK does not anticipate claim 17 and this claim is also in condition for allowance.

n. Claim 18

Corresponding elements of independent claim 18 recite similar limitations as discussed above with respect to claim 1. Based on the foregoing arguments for claim 1, Applicant respectfully submits that HECK does not anticipate claim 18 and this claim is also in condition for allowance.

o. Claim 19

Corresponding elements of independent claim 19 recite similar limitations as discussed above with respect to claim 1. Based on the foregoing arguments for claim 1, Applicant respectfully submits that HECK does not anticipate claim 19 and this claim is also in condition for allowance.

p. Claim 20

Corresponding elements of independent claim 20 recite similar limitations as discussed above with respect to claim 10. Based on the foregoing arguments for claim 10, Applicant respectfully submits that HECK does not anticipate claim 20 and this claim is also in condition for allowance.

q. Claim 21

Claim 21 recites a system for identifying a handset, comprising at least a plurality of classifier means trained to identify at least one of a plurality of handset types.

Applicant has reviewed HECK in detail but could not find any disclosure or suggestion for the classifier means as recited in claim 21. If the Examiner believes otherwise, Applicant requests the Examiner to cite the specific portion of HECK in the next action.

II. Conclusion

In view of the foregoing, it is respectfully submitted that the application is now in condition for allowance. Should the Examiner believe that a telephone interview would help advance the prosecution of this case, the Examiner is requested to contact the undersigned attorney.

Respectfully submitted,

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